

1 WHAT IS CLAIMED IS:

2 1. A vehicle surroundings monitoring apparatus,
3 comprising:

4 frontal information detecting means for detecting at
5 least solid object information in front of an own vehicle;

6 preceding vehicle recognizing means for recognizing
7 a preceding vehicle based on said solid object information;

8 traveling path estimating means for estimating a
9 traveling path of said own vehicle;

10 first evacuation possibility judging means for judging
11 a first possibility of relative evacuation of said preceding
12 vehicle when viewed from said own vehicle according to the position
13 of said preceding vehicle and the position of said own vehicle;

14 second evacuation possibility judging means for
15 judging a second possibility of relative evacuation of said
16 preceding vehicle when viewed from said own vehicle according
17 to information of solid objects other than said preceding vehicle;
18 and

19 preceding vehicle evacuation possibility judging means
20 for judging a possibility of relative evacuation of said preceding
21 vehicle when viewed from said own vehicle based on said first
22 possibility obtained from said first evacuation possibility
23 judging means and said second possibility obtained from said
24 second evacuation possibility judging means.

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1 2. The vehicle surroundings monitoring apparatus
2 described in claim 1, wherein said frontal information detecting
3 means detect road information in front of said own vehicle in
4 addition to said solid object information and have traveling
5 conditions detecting means for detecting a traveling condition
6 of said own vehicle.

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8 3. The vehicle surroundings monitoring apparatus
9 described in claim 1, wherein said traveling path estimating means
10 estimate a first own traveling path based on said road information
11 and estimate a second own traveling path based on said traveling
12 condition and estimate a new own traveling path based on said
13 first own traveling path and said second traveling path.

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15 4. The vehicle surroundings monitoring apparatus
16 described in claim 1, wherein said first evacuation possibility
17 judging means judge the possibility of the relative evacuation
18 of said preceding vehicle when viewed from said own vehicle
19 according to a longitudinal distance of said preceding vehicle
20 from said own vehicle and a lateral separation of said preceding
21 vehicle from said new own traveling path.

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23 5. The vehicle surroundings monitoring apparatus
24 described in claim 1, wherein said preceding vehicle evacuation
25 possibility judging means judge that when said preceding vehicle

1 exists further than a preestablished distance, there is no
2 possibility of relative evacuation of said preceding vehicle when
3 viewed from said own vehicle.

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5 6. The vehicle surroundings monitoring apparatus
6 described in claim 1, wherein said first evacuation possibility
7 judging means provide a plurality of distance divisions in front
8 of said own vehicle, establish left and right evacuation
9 possibility judging regions around said new own traveling path
10 at said respective distance divisions, and when said preceding
11 vehicle exists in said evacuation possibility judging regions
12 represent said first possibility as a first specified numerical
13 evacuation possibility corresponding to said respective
14 evacuation judging regions and said preceding vehicle evacuation
15 possibility judging means judge that there is a possibility of
16 relative evacuation of said preceding vehicle when viewed from
17 said own vehicle, in case where the sum of said first specified
18 numerical evacuation possibility exceeds a threshold value.

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20 7. The vehicle surroundings monitoring apparatus
21 described in claim 6, wherein said distance divisions are composed
22 of a far distance division, an intermediate distance division
23 and a near distance division.

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25 8. The vehicle surroundings monitoring apparatus

1 described in claim 1, wherein when said preceding vehicle exists
2 in a preestablished region in the vicinity of said new own
3 traveling path, said first evacuation possibility judging means
4 the sum of said first specified numerical evacuation possibility
5 is cleared and when said preceding vehicle does not exist in said
6 region in the vicinity of said new own traveling path and said
7 respective evacuation possibility judging regions, reduce the
8 sum of said first specified numerical evacuation possibility to
9 make a judgment that there is a small possibility of relative
10 evacuation of said preceding vehicle when viewed from said own
11 vehicle.

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13 9. The vehicle surroundings monitoring apparatus
14 described in claim 1, wherein when a solid object moving forward
15 and different from said preceding vehicle exists in a region in
16 the vicinity of said new own traveling path, said second
17 evacuation possibility judging means represent said second
18 possibility as a second specified numerical evacuation
19 possibility and add said second specified numerical evacuation
20 possibility to the sum of said first specified numerical evacuation
21 possibility so as to further enhance the possibility of relative
22 evacuation of said preceding vehicle when viewed from said own
23 vehicle.

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25 10. A traveling control system for controlling a traveling

1 of an own vehicle at least based on said information extracted
2 from said vehicle surroundings monitoring apparatus described
3 in claims 1 of the possibility of evacuation of a preceding vehicle.

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